



***FINAL***

***AIR MONITORING PLAN***

**FOR THE**

**SEDIMENT AND SOIL FLOODPLAIN EXCAVATION AND REMOVAL**

**AT THE**

**LEMON LANE LANDFILL SITE**  
**ILLINOIS CENTRAL SPRING**  
**BLOOMINGTON, INDIANA**

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## **SECTION 1: INTRODUCTION**

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This Air Monitoring Plan (AMP) sets forth the procedures that will be used to conduct air monitoring and air sampling during the remediation of PCB impacted soil at the ICS Swallow Hole floodplain area in Bloomington, Indiana. Remediation will involve the excavation, loading, consolidation, and transport of soil containing low levels of polychlorinated biphenyls (PCBs).

The primary objective of the air monitoring program is to continuously monitor airborne PCB emissions generated during remediation and to limit the spread of any such emissions beyond the site perimeter.

The most accurate measure of PCB emissions during remediation and waste handling activities is via the collection of perimeter air samples for PCBs. Perimeter sampling for PCBs will be performed continuously during excavation activities and material handling involving soils containing PCB concentrations over the site cleanup criteria in the Swallow Hole and possibly in the Quarry Springs flood plain areas. Collection procedures for perimeter air samples are described more fully in the following sections of this plan.

In addition to perimeter monitoring, the Site Remediation Contractor for this project will be proactive in minimizing the generation of dust by implementing control procedures, including:

- regular covering of dry waste stockpiles, and
- spraying and misting of the excavations, haul roads, and materials handling stations, as required.

Stockpiles of wet soils and sediments, however, will be left uncovered and exposed to dry for hauling or backfilling. Wet materials will not produce dust and airborne emissions as dry materials would.

If required additional measures to reduce PCB air emissions may include limiting or eliminating stockpiles, reducing the size of excavations, limiting hours of operation, and limiting operation in hot, dry weather.

If, during the course of the project, it can be demonstrated via sampling that airborne emission levels are not a threat to offsite receptors, the monitoring program may be reduced with the consent of the U.S. EPA Region 5.

## **SECTION 2: PERIMETER AIR SAMPLING FOR PCBs**

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Perimeter PCB air samples will be collected during days that excavation, material handling, loading, and shipment of soil containing PCB concentrations over the site cleanup criteria of 10 ppm are taking place in the Swallow Hole area. Samples will be collected using U.S. EPA Method TO-4A. This method involves collecting a 24-hour air sample using a modified polyurethane foam (PUF) sampler. Airborne PCBs are collected on a PUF cartridge preceded by a quartz fiber filter. Both the cartridge and the filter are submitted for laboratory analysis. Airborne PCB concentrations will be reported in nanograms per cubic meter ( $\text{ng}/\text{m}^3$ ), and detection limits of approximately  $5 \text{ ng}/\text{m}^3$  can usually be achieved.

Daily air samples will be collected at one air monitoring station. The sampler will be placed along the northeast perimeter of the property, inside the fence line separating the site from the Rinker trailer park as shown in Figure 8 of the Work Plan. The actual sampler location in the field may differ slightly if necessary to place the unit in a clear, unobstructed location.

Two days of background sampling will be performed prior to the beginning of remedial activities in the Swallow Hole area. One 24-hour sample will be analyzed during each day of background sampling.

An onsite meteorological station will be the primary resource for obtaining applicable weather information. This information will include wind speed, wind direction, temperature, rainfall, and barometric pressure. Average wind speed, average wind direction, and maximum and minimum temperatures will be recorded on a daily basis. Data from this unit will be used to determine prevailing wind direction and weather information. The prevailing wind direction for the day is defined as the quadrant (north, south, east, or west) with the highest incident frequency during the work shift.

From the first day of excavation in the Swallow Hole area, one sample will be collected each day for analysis.

Quality control samples for perimeter air sampling will consist of trip field blanks. The trip blank will consist of a PUF cartridge and a quartz fiber filter. The cartridge and filter will be prepared by the laboratory and shipped in a cooler with the other media. The trip blank will not be opened in the field. A minimum of one blank PUF sample per week will be submitted to the laboratory for analysis along with the samples. Blank samples will be numbered, logged, and labeled in the same manner as actual PUF samples, and no information will be provided to the laboratory that distinguishes them as blanks.

All perimeter air samples will be analyzed using the best turnaround time available. For PUF analysis this is typically 72 hours. Results will be either faxed or emailed directly from the lab to the field office. From there they will be disseminated to the EPA. Any result exceeding 50 percent of the action level will be immediately forwarded to the EPA. All routine air data will be presented in tabular format. Data will also be posted in the field office.

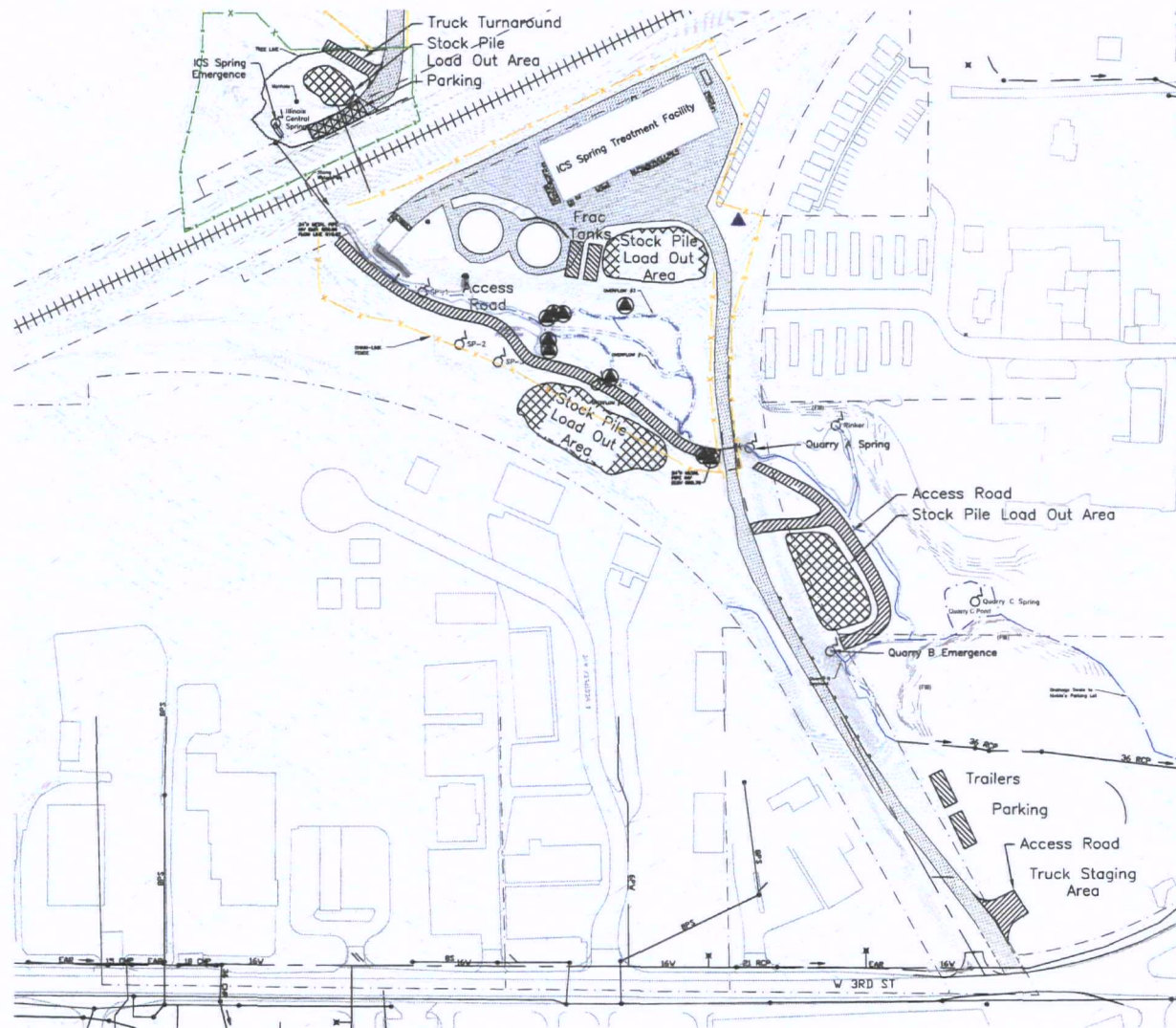
The action level for perimeter PCB air sampling will be 1,000 ng/m<sup>3</sup> over the highest background level. If PCB concentrations exceed the action level in any perimeter sample, the EPA will be immediately notified and a meeting or conference call will be conducted to review the circumstances of the exceedance and determine what additional measures are necessary to prevent a recurrence.

The initial action measures that will be taken to reduce perimeter PCB air concentrations may include:

- Increased use of water misting at the excavation, on waste piles, along haul roads;
- Reducing or covering stockpiles and/or inactive work areas;
- Altering work practices such as moving to other work locations on site, or working with different materials;
- Working certain areas only when the wind is in a favorable direction
- Working a different shift (early morning or night, for example) when the temperature is cooler to minimize volatilization; and,
- Reducing the area of waste that is exposed.

If a pattern of repeated exceedances emerges, all PCB excavation and handling activities will cease and all potential sources will be covered until an alternative material handling plan can be developed. Such measures may include:

- a reduced work shift,
- handling less material per day, and/or
- backfilling excavations more quickly.



30500.31 - EM-SH-QS - Figure 08 - Conceptual Remediation Site Layout.dwg



- — — — — Overhead Electric
- — — — — Gas Line
- +++++ Railroad Tracks
- - - - - Chain Link Fence
- - - - - Existing Creek Channels

- Swallow Hole (to be grouted)
- Spring
- ▲ PUF Sample Location



CBS		
Figure 8 Conceptual Remediation Site Layout EM/SH/QS Work Plan Bloomington, Indiana		
Drawn By: RLR	Date: 8/5/10	Scale: 1"=150'

## **SECTION 3      SAMPLE MANAGEMENT**

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### **3.1      SAMPLE IDENTIFICATION**

Each sample, including quality control samples, will be identified with a unique sample number. This number will provide easy identification of the sample in field logs, field data sheets, analytical reports, chain-of-custody forms, and project reports. The sample numbering system for air samples under this project is divided into three parts. A typical air sample for this project will have the following nomenclature:

**PN-PUF-XXX,**

where:

**PN**      This identifier represents a site-specific project number.

**PUF**      This acronym will be used to identify the PUF sampling effort.

**XXX**      Three-digit numerical identifier representing the next available consecutive number starting at 001.

The objective of this system is to provide a unique numbering system that is clearly understandable to project personnel. Sample number and corresponding sample information such as site name, sampling date, and sample location will be kept in a sample log.

### **3.2      FIELD DOCUMENTATION**

Field documentation for this project will include field logbooks, air sampling, and air monitoring data sheets, computer sample logs, and sample labels.

The HSC will maintain a field logbook at all times during the project. This logbook will be used to record (in a chronological manner) all sampling activities, project meetings, field decisions, and other events that may impact the air monitoring data.

All air sample cartridges and tubes will be labeled in the field prior to collection of the actual sample. Each label will include the following information:

- Sample location
- Sample number
- Date sampled
- Sampler's initials

### **3.3 SAMPLE HANDLING, PACKAGING, AND SHIPMENT**

Upon completion of each sampling event, the samples collected (including any quality control samples) will be packaged in a cooler for shipment to the analytical laboratory. Air samples will be shipped by overnight courier, every work day a sample is collected. PUF cartridges will be labeled, wrapped in aluminum foil, placed in padded sample bottles, and carefully packaged in the sample cooler to minimize jostling. Samples will be sent on wet or blue ice for preservation.

The sample cooler will then be filled completely with packing material such as Styrofoam peanuts to prevent shifting and damage during shipment. The signed chain-of-custody documents (discussed in the following subsection) will be placed in a large zipper-sealed bag and affixed to the inside of the cooler lid. The cooler will then be sealed with packing tape, and custody seals will be affixed to ensure the integrity of the chain of custody.

### **3.4 CHAIN-OF-CUSTODY PROCEDURES**

Strict chain-of-custody procedures will be followed for all air sampling under this project. In this event, the sample custody form will be signed as relinquished by the person shipping the samples when the cooler is sealed. The custody document will then be sealed in the sample cooler with the samples. Upon receipt of the sealed sample cooler, the laboratory sample custodian will acknowledge receipt using the overnight courier's document and will retain a copy for the custody record. The custodian will then open the cooler, inventory the samples, acknowledge receipt of the samples using the chain-of-custody document, and log the samples into the lab.



## **SECTION 4: LABORATORY ANALYSIS**

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The PUF cartridges and glass fiber filters collected as part of the perimeter air monitoring program will be analyzed for PCBs in accordance with EPA Method TO-4A. Analytical results will be reported in ng/m<sup>3</sup> of air.

ALS / DataChem Laboratories, Inc., of Cincinnati is the lab approved in the Bloomington Project QAPP to perform PUF analysis and will be used during this project. In addition to one air monitoring sample (PUF) each day, one field (trip) blank per week of monitoring will be submitted for analysis. Samples will be transported from the site to the lab in Cincinnati every work day that air monitoring samples are collected. All air monitoring analyses will be the best turnaround time available. Samples for the work day are collected the next morning and sent overnight to the lab. Allowing 24 additional hours for PUF analysis in the lab will typically result in a total turn around of 72 hours. Therefore, for example, the best TAT for Monday's results would typically be reported Thursday. .

Information on sampling and laboratory procedures is provided in the Quality Assurance Project Plan (QAPP) for the Bloomington project dated March 2010.

## **SECTION 5: DATA REPORTING**

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The results of perimeter air sampling will be reviewed by the HSC upon receipt from the laboratory. If airborne PCB concentrations at the site perimeter exceed the action level of 1,000 ng/m<sup>3</sup>, above background, the measures described in Section 2 will be implemented. Any detected levels will be promptly reported to the onsite government representatives.

All perimeter monitoring results will be recorded on the appropriate sample logs. Logs will be updated on a daily basis and posted in the project office at the site. A weekly summary of monitoring results will be submitted to the U.S. EPA.

A summary of air monitoring activities completed on this project along with all air sampling data generated will be included in the final project report. The report will address any incident in which action levels were exceeded and the actions taken to reduce airborne emissions to acceptable levels.